Section 6
Safety and Health Benefits

This section discusses the safety and health benefits that can be expected by the development of well-designed pedestrian and bicycle facilities. Current planning literature shows the importance of these facilities in helping to prevent and reduce traffic accidents, providing travel routes for people of all ages and abilities, and providing public health benefits for communities and its citizens.

6.1 Accident Data

Accident data is an important means of determining areas within communities that may require additional attention for addressing the needs of pedestrians and bicyclists. Accident data typically is recorded by local police in order to assist with the evaluations of officer placement, areas of enforcement, and incident reports. This type of data also can be used for roadway engineering studies, traffic signal warrant and speed studies, public safety programs, and safety project decisions.

Accident data can be recorded in a variety of ways. For instance, some communities keep track of crashes involving pedestrians and bicycles, while others only record data relevant to motor vehicle accidents. The level of detail within these records also may vary dependent on who reports the incident.

The Illinois Department of Transportation (IDOT) has initiated a system of recording crash data that merges crash records with public health records. This merger allows the State of Illinois to gain a better sense of the relationships between crashes and injuries. The information is recorded as part of the Crash Outcome Data Evaluation System (CODES). Information for Winnebago and Boone counties are contained within this database. The data is not divided by municipalities within the county records.

According to the IDOT Emergency Medical Services (EMS) and Highway Safety Data Reporting System, in 2003, 125 pedestrian/pedalcyclists crashes were recorded in Winnebago County. In the same year, 15 were recorded in Boone County. The number of pedestrian/pedalcyclist incidents within these two counties has fluctuated in the past 10 years. No apparent trends can be seen within the data for the years of 1994 to 2003 for Boone and Winnebago Counties (see **Table 6-1, Pedestrian and Pedalcyclist Collision Type Data**).

Table 6-1 Pedestrian and Pedalcyclist Collision Type Data*		
Year	**County**	
	Boone	**Winnebago**
	Number of Crashes	**Number of Crashes**
1994	5	49
1995	15	168
1996**	6	66
1997	15	205
1998	16	175
1999	11	164
2000	17	127
2001	14	147
2002	19	123
2003	15	125

*Data was provided through the Illinois Department of Public Health EMS Data Reporting System.
**Data for 1996 was limited to traffic crashes occurring on roads under the jurisdiction of IDOT only.

Specific intersections and/or paths were not identified within these records. The data included within these reports consists only of completed reports sent to IDOT from local police when a crash involved a death, injury, and/or more than $500 damage to any vehicle or property.

In order to maintain comprehensive records of accidents, municipalities and counties should develop a crash data collection system to account for bicycle and pedestrian accidents occurring within the MPA. This system would be maintained in conjunction with the state collection system and allow for additional detail to be kept on record to help identify problem areas.

Accident data is particularly useful in determining the advantages of constructing bicycle and pedestrian facilities. According to Transportation Alternatives,[1] bicycle accident and fatality statistics are reduced when bicycle lanes that are designed and maintained properly are present. This conclusion is supported by a number of government studies, as well. For instance, the Community Development Department in Cambridge, Massachusetts found that on-street bicycle facilities help define road space, promote an orderly flow of traffic, encourage bicyclists to ride with the flow of traffic, signal motorists that bicyclists have a right to the road, reduce the chance of motorists straying into the bicyclist's path of travel, and make it less likely for passing motorists to swerve toward opposing traffic.[2] Independent studies have confirmed similar results.

[1] The Electronic Bicycle Blueprint. Chapter 17, "Accident." 1999. www.transalt.org.
[2] "Safety Benefits of Bike Lanes." The Department of Community Development, Cambridge, MA.

Reduced risk can be accomplished through the promotion of pedestrian and bicycle facilities in both direct and indirect manners. For instance, designs that include the installation of raised medians, improved intersections, and marked paths help reduce pedestrian risk by nearly 28 percent.[3]

Paved Shoulder Used for Bicycling and Walking

Likewise, these facilities further reduce the risks associated with driving indirectly by promoting walking and bicycling over other transportation choices. International studies have suggested that as the number of people walking and bicycling increases, the number of deaths and injuries related to traffic decreases.[4] Furthermore, by building and incorporating pedestrian and bicycle facilities into designs, cities and villages can reduce points of contention by keeping pedestrians and bicyclists out of the same spaces as motorized traffic.[5]

Reducing pedestrian and bicyclists' risk also can be accomplished through the design of pedestrian and bicycle facilities by creating a scale amenable to travel without motorized means. In doing so, personal security can be increased by the perception of being visible by cars and from buildings. The notion of "watchful eyes" returns to communities when people are able to make use of the streets for walking and biking.[6] For example, studies have suggested that people who lived in highly walkable areas had more social involvement within their communities and were more likely to know their neighbors, to participate in local events, and to trust others than those who did not live in these environments.[7]

An annotated bibliography of additional studies can be found in **Attachment C, Bicycle Lane Studies**.

Bicycle Route

[3] Complete the Streets. 2005. www.completestreets.com. (Accessed July, 2006).
[4] www.completestreets.com.
[5] Alaimo, Katherine, et al. Design Guidelines for Active Michigan Communities: Imagining, Creating, and Improving Communities for Physical Activity, Active Living, and Recreation. Flint, MI: Print Comm, 2006.
[6] Southworth, Michael. "Designing the Walkable City." Journal of Urban Planning and Development (2005): 246-57.
[7] Frank, Lawrence, Sarah Kavage, and Todd Litman. Promoting Public Health through Smart Growth: Building Healthier Communities through Transportation and Land Use Policies and Practices. Vancouver, British Columbia: Smart Growth BC, n.d.

6.2 Sidewalk Maintenance

Many municipalities require that sidewalks are built as part of new developments. Sidewalks are subject to deterioration, including spalling, scaling, cracking, and heaving. Typically, maintenance is left to the property owners, which may not address long-term maintenance needs.[8]

Within the MPA, few municipalities have programs established to care for sidewalk maintenance. Municipal and county agencies were surveyed as part of this Plan. Of seven reporting agencies, only two reported that programs were in place to provide for sidewalk maintenance.

Regulations can be established to account for sidewalk maintenance, in particular regarding removal of snow and ice; inspections; and responsibility for maintenance.

Sidewalk in Need of Repair

Examples of typical regulations include the following language:

> Removal of Snow, Ice, and Accumulations: It is the responsibility of the abutting property owners to remove snow, ice and accumulations promptly from sidewalks. If a property owner does not remove snow, ice or accumulations within a reasonable time, the City may do so and assess the costs against the property owner for collection in the same manner as a property tax.[9]
>
> Sidewalk Inspections: The Building Department personnel are authorized to inspect, approve or disapprove the application for and construction of all sidewalks located within the corporate limits of the City. The party constructing, reconstructing or repairing any sidewalk shall call for inspections by notifying the inspector of sidewalks of the City when the sub-grade has been brought to the elevation and grade as established by the City, and the forms have been set. A further inspection shall be called for and required upon completion of the sidewalk and removal of the forms but before the sidewalk is backfilled. Upon completion of all work and inspections as hereinbefore set out, the inspector of sidewalks for the City shall so certify upon the space provided on the permit to construct, reconstruct, or repair sidewalk and shall certify that the sidewalk has been completed in accordance with the specifications and plans of the City.[10]

[8] Evans-Cowley, Jennifer. "Sidewalk Planning and Policies in Small Cities." Journal of Urban Planning and Development, June 2006.
[9] Code of Iowa, Sec. 364.12[2b & e]
[10] City of Urbandale, Iowa.

> Responsibility for Maintenance: It is the responsibility of the abutting property owners to repair, replace or reconstruct, or cause to be repaired, replaced or reconstructed, all broken or defective sidewalks and to maintain in a safe and hazard-free condition any sidewalk outside the lot and property lines and inside the curb lines or traveled portion of the public street.[11]

Regulations are an important element of ensuring that proper maintenance programs are established within a municipality. They set forth the direct responsibilities of agencies and residents within the communities. Studies have shown that a lack of code enforcement in small municipalities leads to deteriorated sidewalk conditions[12].

6.3 Public Health Benefits

Pedestrian trips are important aspects of every trip taken. Pedestrians are expected in all types of environments. Likewise, bicyclists can be expected to ride on almost any roadway, or even paths and sidewalks when permitted. Walking and bicycling are viable transportation options, and at times, are the only options for certain groups of people, such as the young or the elderly. The benefits of walking and bicycling, including health and gains in social capital, are being found throughout the country.

Studies have shown that the walking and bicycling environment of a community affects how much and how often people will walk and bike. Typically, Americans will walk approximately one-quarter to one-half mile for regular, daily trips if pedestrian amenities, such as sidewalks, pedestrian cross signals, and lighting, are present. Although walking is part of every trip made, most Americans prefer to use their cars for trips exceeding these limits; 10% of all total trips are made by foot.[13]

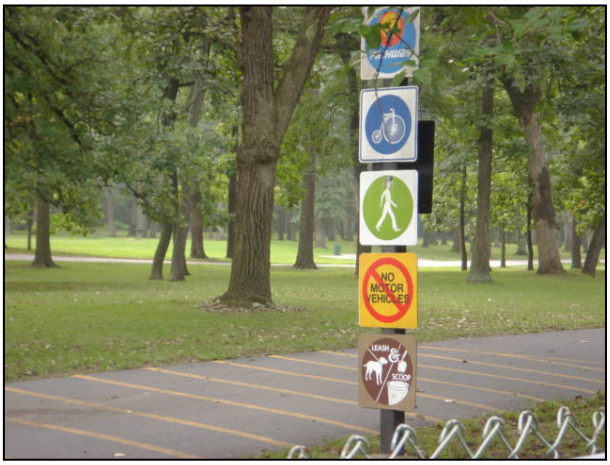
As aforementioned, the addition and/or retrofitting of existing roadways with pedestrian and bicycle facilities can increase safety initiatives as they pertain to non-motorized transportation users within a community.[14] Studies have shown that accidents occurring when people walk along a road with no pedestrian facilities account for 10-15 percent of all pedestrian crashes. Fewer pedestrian crashes occur in urban areas than in rural areas. By providing or installing paved shoulders these crashes can be reduced by up to 80 percent; while the installation of sidewalks can increase this percentage to 88 percent. The presence of these facilities increases awareness within communities that pedestrians and bicyclists may be present along the roadways.

[11] Code of Iowa, Sec. 364.12 [2c]
[12] Evans-Cowley 2006.
[13] Southworth 2005.
[14] Jackson, Richard J., and Chris Kochtitzky. "Creating a Healthy Environment: The Impact of the Built Environment on Public Health." Public Health/Land-Use Monograph (n.d.).

Public health experts also are promoting walking and bicycling as a means of responding to issues regarding health. Public health experts have been suggesting walking and bicycling programs in communities throughout the country in order to combat a growing obesity epidemic.[15] Experts have shown that as little as a half hour of moderate activity like walking and biking can promote long term health, yet only one quarter of the United States population achieves this initiative. Walking and bicycling can be viable transportation alternatives for short-distance trips. Community fitness as a whole can be improved with the inclusion of pedestrian and bicycle networks within villages and cities.

Walking and bicycling not only help individual and community health, but the activities also help to reduce environmental deficiencies, including air and water pollution. Motorized vehicles emit particulates into the air that are linked to increases of asthma and other respiratory illnesses within communities. By reducing the total amount of vehicle travel, pedestrian and bicycle facilities can help to reduce particulate matter released from motorized vehicles.[16] According to the 2000 United States Census, fewer than 2% of individuals within Winnebago and Boone counties commute to work on foot and/or bicycle.

Pedestrian and bicycle facilities also can help to accommodate users that are unable to operate motor vehicles, including children, senior citizens, and disabled persons. All users should have equal access to the public rights of way in order to provide for a transportation choice, as well as recreational activity. Physical barriers can be alleviated with well designed pedestrian and bicycle facilities that otherwise would prohibit these users from moving about their communities.[17]



Shared Use Path

The connection between health and urban form can be made by understanding the relationship between development patterns and transportation choices. Compact development, increased land use density, and walkable/bikable communities increase the levels of active non-motorized transportation use within a population.[18] Policies and regulations adopted within the MPA can assist in the creation of a continuous and effective pedestrian and bicycle network. The construction and/or retro-fitting of this network can lead to numerous advantages within the

[15] Frumkin, Howard. "Urban Sprawl and Public Health." Public Health Reports 117 (2002): 201-17.
[16] Frank, Kavage, and Litman n.d.
[17] Public Rights Of Way Access Advisory Committee. Building a True Community. Washington, D.C.: ACCESS Board, 2001. and Jackson and Kochtitzky n.d.
[18] Frank, Kavage, and Litman n.d.

MPA including community fitness, improved air quality, safe travel routes, and accommodations for various non-motorized transportation users.

These facilities create connections between places of residence, business, and services. Excessive stress on any one particular mode of transportation is eased, and people are able to make use of local resources without having to travel long distances by vehicles. At times, facilities such as these even serve as magnets to attract people to communities either through recreational uses or a desire to live in walkable and bikable locations. Municipals officials and community leaders have expressed an interest in supporting bicycle programs, including bicycle workshops in order to boost interest in these transportation options and to promote their communities (See **Section 11.2 Stakeholder Interviews**).

Another aspect of providing an interconnected system of on-street bicycle facilities, off-street shared-use paths, and sidewalk amenities is that they motivate citizens to increase their activity, especially if the facilities are provided in close proximity to their neighborhoods.

As urban areas are planned and a community-wide system of interconnected facilities is implemented for bicycle and pedestrian transportation, research has shown that the intensity of use increases. The reasons or motivations for increased usage include the following:

- Exercise
- Enjoyment
- Relaxation
- Appreciation of nature
- Personal commitment
- Family togetherness
- Solitude / spiritual growth
- Skill development

Ultimately, providing a complete and balanced transportation system improves and enhances opportunities and choices for the citizens, community organizations, and businesses. In short, these facilities are just one of several factors to improve the quality-of-life in the metropolitan and surrounding environs of Rockford.